



Healthcare CMOS IC System Design

IEEE Distinguished Lecture Jointly Organised by IME and IEEE Solid-State Circuits Society Singapore Chapter

GUEST SPEAKER

Prof Hoi-Jun Yoo

Korea Advanced Institute of Science and Technology (KAIST)

When: **7th June 2010, 2.00 p.m. to 3.00 p.m.**

Where: **Institute of Microelectronics, Singapore**

11 Science Park Road, Singapore Science Park II, Singapore 117685

Abstract

Compact and convenient healthcare systems made of CMOS IC are necessary for the low cost ubiquitous healthcare service. Healthcare systems, such as portable, wearable and implantable, are anatomised, and the signals, circuits and systems from the body to the LAN or other public networks are examined. The compact CMOS circuits for the sensor read-out, ADC, ultra low power platform, and wireless communication will be explained. The packaging technology, especially wearable forms, is important for user's convenience. Fabric will be used extensively as the system integration substrate, and a new integration scheme that the CMOS ICs will be directly bonded on the fabric will be introduced. Bandage type ECG monitors, wirelessly powered and connected to the reader, will be explained as the system example.

Speaker Biography



Prof Hoi-Jun Yoo (IEEE Fellow) graduated from the Electronic Department of Seoul National University, Seoul, Korea, in 1983 and received the M.S. and Ph.D degrees in electrical engineering from the Korea Advanced Institute of Science and Technology (KAIST), Daejeon, in 1985 and 1988, respectively. His Ph.D. work concerned the fabrication process for GaAs vertical optoelectronic integrated circuits.

From 1988 to 1990, he was with Bell Communications Research, Red Bank, NJ, where he invented the two-dimensional phase-locked VCSEL array, the front-surface-emitting laser, and the high-speed lateral HBT. In 1991, he became Manager of a DRAM design group at Hyundai Electronics and designed DRAM families from fast-1M DRAMs to 256M synchronous DRAMs. In 1998 he joined the faculty of the Department of Electrical Engineering at KAIST and now is a full professor. From 2001 to 2005, he was the director of System Integration and IP Authoring Research Center (SIPAC), funded by Korean government to promote worldwide IP authoring and its SOC application. From 2003 to 2005, he was the full time Advisor to Minister of Korea Ministry of Information and Communication, and National Project Manager for SoC and Computer. In 2007, he founded SDIA (System Design Innovation & Application Research Center) at KAIST to research and develop SoCs for intelligent robots, wearable computers and bio systems.

His current interests are high-speed and low-power Network on Chips, 3D graphics, Body Area Networks, biomedical devices and circuits, and memory circuits and systems. He is the author of the books DRAM Design (Seoul, Korea: Hongsung, 1996; in Korean), High Performance DRAM (Seoul, Korea: Sigma, 1999; in Korean), and chapters of Networks on Chips (New York, Morgan Kaufmann, 2006).

Prof Yoo received the Electronic Industrial Association of Korea Award for his contribution to DRAM technology the 1994, Hynix Development Award in 1995, the Korea Semiconductor Industry Association Award in 2002, Best Research of KAIST Award in 2007, Design Award of 2001 ASP-DAC, and Outstanding Design Awards 2005, 2006, 2007 A-SSCC. He is a member of the executive committee of ISSCC, Symposium on VLSI, and A-SSCC. He is the TPC chair of the A-SSCC 2008.



Registration

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